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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/982,406 | 10/17/2001 | John M. White | 6199/DISPLAY/AKT/BG | 6829 |

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APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

KEENAN, JAMES W

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3652

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 09/982,406 | Applicant(s) WHITE ET AL. | |
| | Examiner James Keenan | Art Unit 3652 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2004 and 14 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8, 13-15, 17-21, 47-52 and 59 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 13 and 59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8, 14, 15, 17-21 and 47-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

1. Claim 59 remains withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed in paper #8. Note that claims 1-4 and 13, previously treated on the merits, are now withdrawn, in that, as amended, they read only on non-elected species (figures 7-9).

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8 and 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, it is not clear what is meant by "each ball support surface" and "each ball", since only a single such "surface" and "ball" have been previously set forth.

In claims 17-21, there is no antecedent basis for plural "balls".

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 8, 15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okayama (JP 2-121347) in view of Young (US 6,677,594), both previously cited, or alternatively, over Young in view of Okayama.

As noted previously, Okayama shows the invention essentially as claimed except it apparently is not used in a chamber. Despite applicant's assertion otherwise, the reference clearly shows a substrate support having a socket 10 with a ball support surface.

Young shows a similar substrate support for use in a chamber, the support comprising a plurality of low friction spherical projections 10. The projections, however, are not balls.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Okayama by utilizing the support in a chamber, as suggested by Young, as this would simply be the use of a well known type of support in a processing chamber.

Alternatively, it would have been obvious for one of ordinary skill in the art at the time of the invention to have modified Young by replacing the spring loaded projections with balls, as shown by Okayama, as this would simply be an art recognized alternate equivalent means of supporting substrates with a low friction surface.

Re claims 17-19, note in figure 4 of Young that projection 10A is disposed on the center line of the substrate, and thus supports a "center portion" thereof, as broadly claimed, while projections 10B, 10C support a perimeter portion.

6. Claims 14, 47, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okayama in view of Young (or vice-versa) as applied to claim 8 above, and further in view of Hansson et al (US 4,621,936), previously cited.

The Okayama/Young apparatus does not disclose the surface roughness of the balls to be 4 micro-inches or smoother. As noted above, however, Young does teach the projections to be very low friction.

Hansson teaches the roughness of rolling balls to be in a range which includes 4 micro-inches.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the apparatus of Okayama/Young such that the roughness of the balls was 4 micro-inches or smoother, as shown by Hansson, as this would simply be the use of a specific and well known low friction surface roughness. It is noted that Hansson is not to be considered as specifically teaching the obviousness of using a surface roughness of 4 micro-inches in a substrate support, but merely that using balls with such a low friction surface roughness in general is well known. Young, as noted above, provides the teaching of a very low friction surface for use in supporting substrates.

7. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okayama in view of Young (or vice-versa) as applied to claim 8 above, and further in view of Kroeker et al (US 5,955,858).

The modified apparatus of Okayama/Young does not show the balls to be coated or plated. Note, however, that Young discloses the projections to be made of a low friction plastic material which is resistant to wear but will not damage the wafers. These are the same advantages set forth by applicant.

Kroeker teaches ceramic coated substrate support members 140 (balls).

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the apparatus of Okayama/Young such that the balls were coated with a low friction material, as suggested by Kroeker, as this would be cheaper than making the entire support from the low friction material.

Re claim 21, the specific type of coating is considered a obvious design choice, as it has been held that selecting a known material on the basis of its suitability for the intended use is within the general skill of a worker in the art. Note in particular Kroeker, col. 8, lines 13-21.

8. Claims 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okayama in view of Young (or vice-versa) and Hansson et al, as applied to claim 8 above, and further in view of Kroeker et al.

This rejection utilizes the same obviousness rationale set forth in paragraph 7 above.

9. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okayama in view of Young (or vice-versa) as applied to claim 8 above, and further in view of Masciarelli (US 4,706,793), previously cited.

The modified apparatus of Okayama/Young does not show the balls to be polished.

Masciarelli shows polished support balls 27.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the apparatus of Okayama/Young such that the support balls were polished, as shown by Masciarelli, as this would further improve the low-friction, wear-resistant, and non-damaging characteristics of the balls. In the same manner as noted above, the tertiary reference is to be construed as a general teaching.

10. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okayama in view of Young (or vice-versa) and Hansson et al, as applied to claim 47 above, and further in view of Masciarelli.

This rejection utilizes the same obviousness rationale set forth in paragraph 9 above.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claims 8 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Toshio (JP 2000-353737, cited by applicant).

Toshio shows an apparatus for supporting a substrate in a chamber with an access port (not explicitly shown, but the device is disclosed for use in a heat treating oven which would inherently have a port), including support member 3 having disposed

thereon supports comprised of sockets 11 each with a support surface for balls 9 which contact and support the substrate in a spaced-apart relation to the support member.

13. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshio in view of Young.

Toshio does not show the balls to support a center portion of the substrate, which, as noted above, is shown by Young.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Toshio by utilizing one of the balls to support a center portion of the substrate, as shown by Young, as this would be a simple design expediency if, for example, it was desired to prevent sagging of the substrates.

14. Claims 14, 47, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshio in view of Young and Hansson et al.

Toshio does not disclose the surface roughness of the balls to be 4 micro-inches or smoother. As noted above, however, Young teaches the projections to be very low friction. Hansson, as also noted above, teaches the roughness of rolling balls to be in a range which includes 4 micro-inches.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Toshio such that the roughness of the balls was 4 micro-inches or smoother, as jointly suggested by Young and Hansson, as this would simply be the use of a specific and well known low friction surface roughness.

15. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshio view of Kroeker et al.

Toshio does not show the balls to be coated or plated, but this feature is shown by Kroeker, as noted above.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Toshio such that the balls were coated with a low friction material, as suggested by Kroeker, as this would be cheaper than making the entire support from the low friction material.

16. Claims 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshio in view of Young and Hansson et al, as applied to claim 47 above, and further in view of Kroeker et al.

This rejection utilizes the same obviousness rationale set forth in paragraph 15 above.

17. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toshio in view of Masciarelli.

The apparatus of Toshio does not show the balls to be polished, a feature shown by Masciarelli, as noted above.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Toshio such that the support balls were

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polished, as shown by Masciarelli, as this would further improve the low-friction, wear-resistant, and non-damaging characteristics of the balls.

18. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toshio in view of Young and Hansson et al, as applied to claim 47 above, and further in view of Masciarelli.

This rejection utilizes the same obviousness rationale set forth in paragraph 17 above.

19. Applicant's arguments with respect to claims 8, 14, 15, 17-21, and 47-52 have been considered but are moot in view of the new ground(s) of rejection.

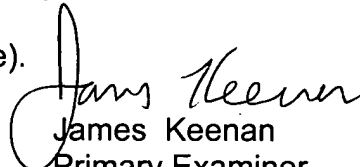
20. Applicant's IDS filed 11/22/04 has been considered. However, applicant has been charged the fee set forth in 37 CFR 1.17(p), even though applicant included a statement pursuant to 37 CFR 1.97(e)(1), because the communication dated 8/27/04 which was relied upon to meet the requirements of that section cited only 5 references, whereas the IDS cited over 170 references.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Keenan whose telephone number is 703-308-2559. The examiner can normally be reached on Monday through Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 703-308-3248. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


James Keenan
Primary Examiner
Art Unit 3652

jwk
3/1/05